

Sleep-Related Infant Death: Information for Public Safety Professionals

Presented by:
Franklin County Infant Safe Sleep Task Force



Words from the field

**“A thorough scene investigation
contributes greatly toward
determining what may have caused
a child’s death.”**

*- James McCoskey, Homicide Detective, City of
Columbus Division of Police*

Learning Objectives

- **Public Safety professionals will be able to:**
 - Define SIDS and sleep-related deaths
 - Discuss common myths about SIDS
 - Identify ways to lower the risk of infant sleep-related death in the community
 - Identify and link public safety professionals to safe sleep-related resources

Today's workshop will provide information on these topics.

Topics on this slide are self-explanatory and may be read by the presenter.

What Is Sudden Infant Death Syndrome (SIDS)?

- SIDS is the unexpected death of seemingly healthy babies 12 months or younger.
- No cause of death is determined by:
 - Death scene investigation
 - Autopsy
 - Review of baby's medical history
- Experts cannot predict which babies will die from SIDS.

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Provide the definition of SIDS as defined by Willinger, James, and Catz in Pediatric Pathology to use as a basis for the rest of the presentation.

Definition: The sudden death of an infant under 1 year of age, which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history.

- SIDS is a diagnosis of exclusion. This means that all other possible causes of death are ruled out before you can call it SIDS.
- A SIDS diagnosis takes into account autopsy findings, results of the investigation of the place where the baby died, and a review of the baby's medical history. Sometimes the family's health history also is reviewed.
- Unfortunately, while there is a lot of research being done about what causes SIDS, researchers still do not know what exactly causes SIDS. Therefore, we are not able to predict which babies will die from SIDS.

(Willinger M, James LS, Catz C. Defining the sudden infant death syndrome (SIDS): deliberations of an expert panel convened by the National Institute of Child Health and Human Development. *Pediatr Pathol.* 1991;11:677–684)

What Is Other Sleep-Related Death?

- Other Infant Sleep-Related Deaths:
 - Suffocation or strangulation (asphyxia)
 - Entrapment, wedging
 - Overlay
 - Sudden Unexpected Infant Death (SUID)
 - Undetermined
- These deaths are usually ***preventable***

An asphyxial death typically refers to a suffocation death; it can be caused by parental overlay, entrapment, strangulation...

Examples:

Suffocation by soft bedding, pillow, waterbed mattress; Strangulation by infant head/neck caught between crib slats;

Entrapment or wedging between mattress and wall, bed frame, furniture;

Overlay by rolling on top of or against baby while sleeping

SIDS vs. SUID

- SIDS – Conclusive evidence that no outside factors caused the death
- SUID – Exact cause of death cannot be determined because other factors are involved (i.e. bed sharing, extra bedding, use of pillows, etc.)
- ***Determining the cause and manner of death can vary by county depending on the coroner***
- Autopsy findings alone often cannot differentiate between SIDS and SUID

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SIDS is a diagnosis of exclusion when all other possible causes of death have been ruled out. On the other hand, an infant death may be ruled a SUID when the exact cause of death can not be determined. This is a likely ruling if anything in the sleep environment or sleep situation may have caused the death (i.e. suffocation on extra bedding, pillows, stuffed animals, etc., possible overlay when bed sharing with mom, dad, and/or siblings.)

Unfortunately, there is little consistency across counties and even across states when determining cause & manner of death. In some areas, all sleep-related infant deaths are automatically called SIDS, no matter what outside factors may be present. But in other areas, if there happens to be anything about the sleep environment that may have caused the death, the death is ruled SUID because exact cause of death cannot be determined. This discrepancy emphasizes the need for complete infant death investigations so that the appropriate cause and manner of death can be determined!

Why Does it Matter?

It's important for:

- accurate cause and manner of death on death certificate
 - data quality/integrity
 - comparison between other counties/states
- recommendations on how to prevent future infant deaths
 - decrease potentially preventable infant mortality

SIDS Facts

- In 2005, there were about 2,200 SIDS cases (US).
 - That's about 6 babies every day.
- It is the leading cause of death for babies from 1 to 12 months of age.
- Highest risk is at 2 to 4 months
 - 91% occur between 1 and 6 months of age.
- Seasonal trend: there are more SIDS deaths in winter months.
- More male babies die of SIDS.
- Unaccustomed tummy sleeping increases risk as much as 18-times.

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These SIDS facts are based on years of national data that show which, when, where, at what age, and under what circumstance babies die suddenly and unexpectedly. Data are derived from the National Institute of Child Health and Human Development and SIDS researchers.

SIDS is

- The cause of death for approximately 2,200 babies in the US each year – that's approximately 6 babies every day. Remember that 20% of SIDS occurs in child care. This means that 1 baby in this country dies every day while in child care.
- The leading cause of infant death between 1 and 12 months of age.
- The third leading cause of infant death from birth to 1 month of age—before 1 month, babies are dying of other causes (#1 is low birth weight and preterm birth; #2 is birth defects). *(This fact is not on the slide but augments fact on infant death between 1 and 12 months of age.)*
- Highest risk is for infants who are 2 to 4 months old.
- More prevalent during the winter months (November–March). This may be because of overbundling or overheating the babies.
- More prevalent in male babies than female babies (60% of SIDS occurs in males)
- SIDS risk increases as much as 18-fold when an infant is accustomed to sleeping on the back and is then placed on the tummy to sleep in the care of a person that is not the primary caregiver.

SIDS Facts

- The exact causes of SIDS are unknown, but SIDS is NOT caused by:
 - Immunizations
 - Vomiting or choking
 - Suffocation or pneumonia
 - The result of neglect or abuse
- SIDS is not contagious!

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Information about SIDS has improved over time through research and data. Some commonly held beliefs about SIDS are not supported by scientific studies.

- The exact causes of SIDS remain unknown.
- It is important to emphasize that immunizations, or shots, do not cause SIDS. Even though the number of immunizations that children get has increased over the last decade, the SIDS rate has decreased.
- SIDS is not caused by vomiting or choking.

Franklin County, OH – Sleep-Related Infant Death Facts, 2006 - 2008

- 80 infants died; that's the equivalent of 4 kindergarten classes
- Over 60% report sharing a sleep surface
- Over 30% were infants placed on their side or stomach
- In almost half of all sleep-related infant deaths, babies were found sleeping in adult beds
- About 53% of these mothers smoked during pregnancy

Babies at Risk for SIDS

- Babies put on their tummies to sleep who **usually sleep on their backs** or babies who roll over onto their tummies (as much as 18x)
- Babies who sleep **on their tummies or on their sides** (2-3x greater risk)

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If baby is a stomach or side sleeper, there is a 2-3 times higher risk for SIDS.

- The relationship between a baby sleeping on the stomach and the higher occurrence of SIDS has been documented worldwide. In 1992, based on international research, the AAP began to recommend that babies be placed on their backs or sides to sleep. That message was updated in 1996 when the AAP stated that the back is the preferred and recommended sleep position for babies up to 12 months of age.
- The side position is not as safe as the back, as the baby can accidentally roll to the stomach, which places the baby at 18x risk for SIDS. In the most recent studies, side and tummy sleeping have the same amount of increase in SIDS risk. So side sleeping is as dangerous as tummy sleeping. The side position should not be used.
- If baby usually sleeps on the back or side and then is placed on the tummy, there is as much as an 18 times higher risk for SIDS.
- Parents are getting the message to place babies on their backs to sleep as a way of reducing the chances of SIDS. Unfortunately, the back-to-sleep message has not reached everyone who cares for babies, including some child care providers, grandparents, babysitters, and other relatives. Babies should sleep on their backs at night and for every nap.

Common question: Do I need to flip the baby back over if s/he rolls onto the stomach? The AAP says that you don't have to. Remember that babies comfortably and consistently begin to roll between 4-6 months old, when the risk of SIDS starts to decrease. However, be aware that babies do occasionally still die after 6 months of age.

Why don't people want to put babies on their backs for sleep?

Common Beliefs:

- *Fear of choking/aspiration*
- *Babies sleep better on their tummies*
- *Babies will develop a flattened head*
- *Babies will develop a bald spot on their head*
- *Babies startle more easily on their backs*
- *Babies develop better if they sleep on their stomachs*
- *Parent request – want babies to sleep on their stomachs (applicable in childcare setting and for babysitters)*

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There are many people who don't want to place babies on their backs for sleep. Here's how you can help to address these concerns if parents or other child care providers bring them up.

Comfort—Babies prefer sleeping on their tummies.

•What parents, grandparents, and child care providers say is true. Research studies have shown that babies who sleep on their tummies sleep longer and more deeply. However, this is actually a bad thing. The research tells us that SIDS often results because there is a problem with arousal – with waking up – when the baby gets into a dangerous situation, such as not having enough oxygen. If the baby is sleeping more deeply, that also means that the baby will have more difficulty arousing if there is a problem. Researchers think that this may be why sleeping on the tummy places babies at increased risk of SIDS.

•If a baby sleeps on the back from the very beginning, it usually isn't a problem. Babies can be taught to sleep on their backs at a very early age and will get used to this sleep position.

The startle response might frighten the baby—Sometimes babies flinch or jerk in their sleep. If they are sleeping on their backs, their arms may flail.

•The startle response is a sudden movement that is sometimes interpreted as frightening for the baby. It is often accompanied by a gasp. This response actually may be protective for the baby, prompting an exchange of fresh air or a slight arousal from deep sleep. Wrapping the baby with a thin blanket so that the blanket is snug around the body and cannot come up over the baby's face may help with this, as long as the wrapping (swaddling) does not lead to overheating.

Flat head—Constant pressure on the back of the baby's head can cause the skull to be less rounded and flat.

•Back sleeping can contribute to a flattening of the back of the head. This condition generally is temporary. As babies grow and become more active, their skulls will round out.

•American babies are spending more and more time in car seats, infant carriers, strollers, swings and bouncy seats, resulting in constant pressure on the back of the head, which contributes to a flat head. Supervised tummy time (when the baby is placed on the tummy while awake and supervised) and holding awake babies helps decrease pressure on the back of the head.

•Plagiocephaly is the medical term for flat head (see *Glossary*). There has been an increase in plagiocephaly that likely is attributable to parents following the Back to Sleep positioning recommendations. The AAP still recommends that healthy infants be placed on their backs to sleep, but also recommends tummy time when the baby is awake and supervised to decrease the chance of a flat head. If a baby's head is misshapen, a child health professional should evaluate it.

Bald spot—The loss of hair on the back of a baby's head can be unsightly.

•As the baby grows, becomes more mobile, and begins to sit up, the hair on the back of the baby's head will have less wear and tear. A bald spot is temporary and the baby's hair will grow, filling in the bald spot. Tummy time will also help to decrease the friction on the back of the head that leads to the temporary bald spot.

•We should consider a bald spot on the back of a baby's head as a sign of a healthy baby, one whose risk for SIDS is lower because he or she is a back sleeper.

Developmental lag to roll over or sit up—Some parents and providers are concerned about the slight developmental lag in rolling over or sitting up that has been reported in the literature and media among babies who sleep on their backs. This delay is still within the normal range for development. Tummy time helps babies to become more active and strengthen muscles that enable them to roll over or sit up.

Parent request - This is a tremendous problem for many child care providers. Parents insist on a sleep position, and child care providers, for many reasons, may not feel comfortable refusing the parents' request.

Fear of Choking/Aspiration

Dispelling the myth:

- Healthy babies will not choke if they spit up.
- Humans have mechanisms that keep them from choking if they are lying on their backs.
- Usually the spit-up rolls down the side of the baby's face or is re-swallowed.
- Research shows no increased risk of aspiration when a baby sleeps on the back.

Spread the word and help clear up this misunderstanding!

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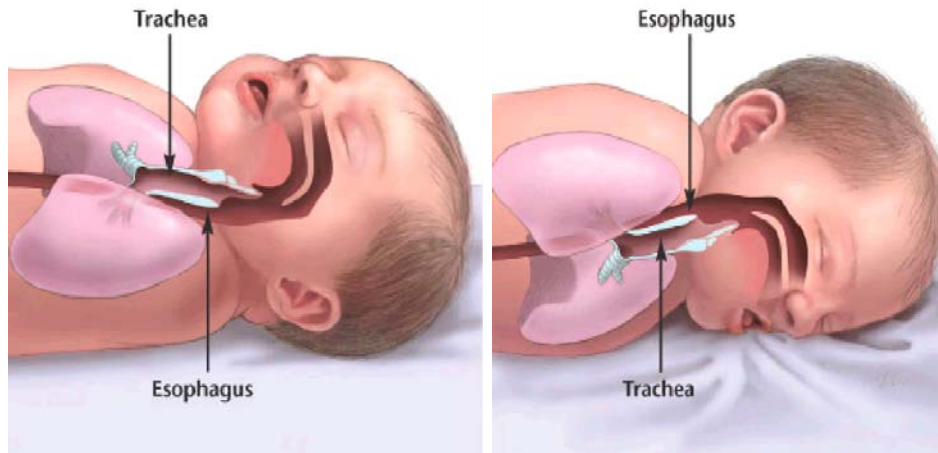


Choking—The most common concern is fear that the baby will choke if s/he spits up while sleeping on the back.

•Healthy babies will not choke if they spit up. Humans have evolved mechanisms that keep them from choking if they are lying on their backs. Millions of babies around the world sleep on their backs without choking when they spit up. Usually the spit-up rolls down the side of the baby's face or is re-swallowed. Research shows that there is no increased risk of aspiration when a baby sleeps on the back.

•If a baby has a specific medical condition related to reflux or projectile vomiting, the baby's pediatrician should be consulted about sleep position, and the information should be shared with the child care provider by the child health professional. Child care providers should refuse to vary from back-to-sleep positioning unless they have documentation of a child health professional's specific instruction to do so.

Explaining the Choking Myth



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When a baby is in the back sleeping position, the trachea lies on top of the esophagus. Anything regurgitated or refluxed from the esophagus must work against gravity to be aspirated into the trachea.

When a baby is in the stomach sleeping position, anything regurgitated or refluxed will pool at the opening of the trachea, making it easier for the baby to aspirate.

Another thing to remind participants:

All of us have a gag reflex – we gag or choke when food threatens our trachea. The epiglottis, or the flap at the top of the trachea, automatically closes to protect the trachea. When the baby “chokes,” it’s a sign that this protective reflex is working. It’s not a sign that the food is going down the trachea.

Safe Sleep Practices

- Always put healthy babies to sleep on their backs for naps and at bedtime
- Avoid overheating
 - Never cover baby's head with a blanket
 - Room temperature should be comfortable for a lightly clothed adult
 - Do not overdress baby
- Only **one** baby per crib
- Pacifiers may be offered to babies to reduce the risk of SIDS

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Be consistent—Always put healthy babies to sleep on their backs for naps and at bedtime.

•It is important to consistently use the back sleep position for babies regardless of the caregiver. If a baby is accustomed to sleeping on the back at night, he or she should continue to be placed on the back for naps. The risk of SIDS dramatically increases when a baby, unaccustomed to sleeping on the tummy, is switched from the back to the tummy.

•Even if the baby sleeps on the tummy at home, it will be safest for the baby to sleep on the back while under your care.

•For pacifiers:

If breastfed, wait until baby is >1 month old before offering a pacifier

If the baby refuses the pacifier, don't force it

If the pacifier falls out while the baby is asleep, you do not have to re-insert it

Safe Sleep Environment

- **Safe crib**
 - Firm mattress
 - Fitted sheet
 - No bumper pads
 - No wedges or positioners
 - No bedding, comforters, or pillows
 - No bib around the baby's neck
 - No toys or stuffed animals in the crib

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The safest place for a sleeping baby is on his or her back in a safety-approved crib that is free of excess bedding and stuffed animals.

Safety-approved crib, firm mattress.

- The crib should be safety approved with slats spaced not more than $2\frac{3}{8}$ " apart. The firm mattress should be a snug fit for the crib, portable crib, or playpen frame. The space between the mattress edge and crib frame should not be more than the width of 2 adult-sized fingers, and the mattress should have a tight-fitting sheet.
- Do not ever use a mattress that does not snugly fit the crib or bassinet that you are using.
- The sheet should be tight-fitting. Do not ever use a different sized sheet for the crib or bassinet; it should be designed for that specific mattress.

Avoid chairs, sofas, air mattresses, water beds, and adult beds.

- It is best practice to not put babies to sleep anywhere but in a safety-approved crib.
- In family child care home settings, it is not uncommon to find babies sleeping on a variety of surfaces. Chairs, sofas, water beds, cushions, and standard or adult beds are NOT safe sleep surfaces because babies can fall or become entrapped in crevices in the furniture or between cushions.

Safe Sleep Environment

- Consider a blanket sleeper or sleep sack for the baby instead of a blanket if extra warmth is needed
- Maintain a smoke-free environment
- Avoid chairs, sofas, air mattresses, water beds, and adult beds

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Excess bedding and fluffy blankets, comforters, pillows, toys and stuffed animals can impair the baby's ability to breathe if these items cover the face. Keep all of those things out of the crib. The only thing that should be in the crib is the baby. Consider using blanket sleepers or sleep sacks for the baby instead of blankets if extra warmth is needed. Bibs should be removed before a baby is placed for sleep, because of risk of strangulation.

Bumper pads are not necessary. They keep you from being able to see the baby clearly. Babies can also get wedged underneath or against bumper pads and suffocate. Babies are not big enough to seriously injure themselves if they bump up against the crib.

Wedges or positioners are not recommended. There's no evidence that they help keep a baby in place, and they can be dangerous. If a baby moves, s/he can suffocate against a wedge, or the wedge/positioner can end up on top of the baby.

Baby in a Safe Crib

Best practice



Only if needed...



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Picture 1 - This is a picture from the Consumer Product Safety Commission that shows how a baby should be placed in a crib when put to sleep at night or for a nap. **Current safety guidelines prohibit the sale of/use of drop side cribs.**

Picture 2 - This is called "feet to foot." The baby's feet are against the foot of the crib. A single thin blanket is then tucked in under the arms along the side and foot of the crib, so that the baby cannot scoot under the blanket, and the blanket does not go up over the child's head.

If you are going to use a thin blanket, you should use the "feet to foot" method. Blanket sleepers and sleep sacks are a good alternative to blankets.

Bed Sharing or Co-sleeping

- The American Academy of Pediatrics (AAP) recommends that babies not bed share
- The safest place for a baby to sleep is in a separate sleep surface (eg, bassinet, crib, cradle) next to the parents' bed

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- Bed sharing is when a baby sleeps with another person(s) on the same sleep surface. It may be hazardous under certain conditions, and is not recommended by the American Academy of Pediatrics because there is an increased risk of SIDS and other forms of unexpected infant death, such as suffocation, with bedsharing.
- Parents can bring the baby into bed for feeding or snuggling, but should put the baby back in the crib when the parent is ready to go to sleep.
- There are conditions that make bedsharing especially dangerous: sleeping with someone who is not the parent, bed sharing on couches/armchairs/waterbeds, when the parent smokes, drinks alcoholic beverages, or uses drugs or medications that impair arousal.
- The safest place for a baby to sleep is in a separate sleep surface (eg, bassinet, crib, cradle) next to the parents' bed.

(American Academy of Pediatrics, Task Force on Infant Sleep Position and Sudden Infant Death Syndrome. Changing concepts of sudden infant death syndrome: implications for infant sleeping environment and sleep position. *Pediatrics*. 2000;105:650–656)

Take Note: Cues to Look for in an Investigation

- Is baby sharing a sleep surface with parents or someone else?
- Is baby sleeping somewhere other than their own crib? (adult bed, waterbed, couch, ottoman, or armchair)
- Is the adult a smoker?
- Did the adult drink alcohol, use medications or drugs that can make it more difficult to arouse or wake up?
- Is the sleep surface cluttered (bedding, toys, stuffed animals, pillows, etc.)?

Pocket SUIDI Guide

Reporting Guidelines **SUIDI**

Case Information

- Investigator Information
- Infant Information

Sleeping Environment

- Evidence of Asphyxia (suffocation)
- Sharing of Sleep Surface
- Change in Sleep Condition
- Evidence of Hyperthermia/Hypothermia
- Environmental Scene Hazards
- Unsafe Sleeping Condition

Infant History

- Diet (solids introduced)
- Recent Hospitalization
- Previous Medical Diagnosis
- History of Acute Life-Threatening Events
- History of Medical Care Without Diagnosis
- Recent Fall or Other Injury
- Use of Religious, Cultural, or Ethnic Remedies
- COD Due to Natural Causes Other Than SIDS

Reporting Guidelines **SUIDI**

Family Information

- Prior Sibling Deaths
- Previous Encounters with Police or Social Service Agencies
- Request for Tissue or Organ Donation
- Objection to Autopsy

Exam

- Pre-terminal Resuscitation Treatment
- Death Due to Trauma (injury), Poisoning, or Intoxication

Investigator Insight

- Suspicious Circumstances
- Other Alerts for Pathologist's Attention
- Description of the Circumstances Surrounding the Death

Pathologist Contact Information

CDC

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- Developed as a quick reference for first responders
- This information should be collected at all infant death scene investigations
- The CDC developed a comprehensive SUIDI form for use at all infant death scene investigations; the pocket SUIDI guide is an abbreviated version that is user-friendly and easy for responders to carry in their pockets

Handling an Infant Death Scene Investigation

- Urge use of SUIDI Investigation form established by CDC
 - include critical components of investigation (sleep position, location, condition of sleep surface, usual feeding source, room temperature, baby's clothing, etc.)

You can make a difference!

- Educate about safe sleep practices at every encounter
- Careful, correct documentation during death scene investigations

Always Promote the ABCs of Safe Sleep

Baby is safest:

- Alone
- on the Back
- in a safety-approved Crib

**Tell parents to decorate the baby's room,
not the crib**

Additional Resources

- National Institute of Child Health and Human Development,
Back to Sleep Campaign
1-800-505-CRIB (2742)
www.nichd.nih.gov/SIDS
- First Candle/SIDS Alliance
National SIDS and Infant Death Program Support Center
1-800-221-7437
www.firstcandle.org
- National Sudden & Unexpected Infant Death Resource Center
1-866-866-7437
www.sidscenter.org

Additional Resources

- CJ Foundation for SIDS
1-888-825-7437
www.cjsids.org
- SID Network of Ohio
1-800-477-7437
www.sidsohio.org
- Consumer Product Safety Commission
http://www.cpsc.gov/cpscpub/pubs/pub_idx.html

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